

by Angela deFreitas

by Angela deFreitas

WHO IS A

Mechatronics is an outgrowth of the area of electromechanics.

JOB OUTLOOK Employment of electro-mechanical technicians is projected to grow 4 percent from 2012 to 2022, slower than the average for all occupations. Electro-mechanical technicians are generalists in technology, and their broad skill set will help sustain demand for their services. Job prospects are likely to be best for electromechanical technicians who train in a field known as mechatronics, which provides an understanding of four key systems: • Mechanical systems • Electronic systems • Control systems • Computer systems Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2014-15 Edition, Electro-mechanical Technicians, on the Internet at <http://www.bls.gov/ooh/architecture-andengineering/electro-mechanical-technicians.htm>

ABOUT THE PROGRAM The Mechatronics Technology College Certificate is designed to prepare technicians through cross-training to work in the diverse fields of mechanical, electrical, and industrial automation. Mechatronics technology and industrial automation is a combination of mechanical systems, electrical systems, fluid power control systems and computer control technology with sensors, transducers and actuators which are integrated to perform some facet of manufacturing. Robot sensors, conveyor systems and software are all components of Computer Integrated Manufacturing (CIM) which is an outcome of Mechatronics. Students with this diverse set of skills are better prepared for the evolving manufacturing industry and will be trained to manufacture a product or perform a task with minimal human intervention through automation. Students who complete the program are prepared for work in a variety of industries to include food processing, pulp and paper metals manufacturing and automated warehousing.



WHAT DO ELECTRO-MECHANICAL TECHNICIANS DO? Electro-mechanical technicians combine knowledge of mechanical technology with knowledge of electrical and electronic circuits. They install, troubleshoot, repair, and upgrade electronic and computercontrolled mechanical systems, such as robotic assembly machines.

WHAT THE WORK INVOLVES

At some time during the work day a.....might:

Install

Troubleshoot

Repair

Upgrade

They find work in manufacturing, utilities and research and teaching and they work closely with electrical and mechanical engineers.

WHO IS THIS CAREER FOR?

Strong-minded, decisive individuals with great leadership skills. Remember, “it’s lonely at the top”.

WHAT CAN I EARN?

HOW DO I QUALIFY?

WHO OFFERS TRAINING IN JAMAICA?

Angela deFreitas is General Manager of CHOICES Career & Education Advice – e-mail - info@choicesonlinejm.com

Send us your comments and suggestions on what you want to know more about. Read again next week for more on exciting careers for now and the future.

What Microbiologists Do [About this section](#)

Most microbiologists work on research teams with other scientists and technicians.

Microbiologists study microorganisms such as bacteria, viruses, algae, fungi, and some types of parasites. They try to understand how these organisms live, grow, and interact with their environments.

Duties

Microbiologists typically do the following:

- Plan and conduct complex research projects, such as developing new drugs to combat infectious diseases
- Supervise the work of biological technicians and other workers and evaluate the accuracy of their results
- Isolate and maintain cultures of bacteria or other microorganisms for study
- Identify and classify microorganisms found in specimens collected from humans, plants, animals, or the environment
- Monitor the effect of microorganisms on plants, animals, other microorganisms, or the environment
- Keep up with current knowledge by reviewing the findings of other researchers and by attending conferences
- Prepare technical reports, publish research papers, and make recommendations based on their research findings
- Present research findings to scientists, non-scientist executives, engineers, other colleagues, and the public

Most microbiologists work in research and development. Many conduct basic research with the aim of increasing scientific knowledge. This may include growing strains of bacteria in various conditions to learn how they react to those conditions. Other microbiologists conduct applied research and develop new products or solve particular problems. Microbiologists who apply basic research to such problems may be developing genetically engineered crops or better biofuels.

Microbiologists use computers and a wide variety of sophisticated laboratory instruments to do their experiments. Electron microscopes are used to study bacteria and advanced computer software is used to analyze the growth of microorganisms found in samples.

It is increasingly common for microbiologists to work on teams with technicians and scientists in other fields, because many scientific research projects involve multiple disciplines.

Microbiologists may work with [medical scientists](#) or biochemists while researching new drugs, or they may work in medical diagnostic laboratories alongside physicians and nurses to help prevent, treat, and cure diseases. For more information, see the profiles on [biochemists and biophysicists](#), [physicians and surgeons](#), and [registered nurses](#).

The following are examples of types of microbiologists:

Bacteriologists study the growth, development, and other properties of bacteria, including the positive and negative effects that bacteria have on plants, animals, and humans.

Clinical microbiologists study how microorganisms live and interact with their environments so that they can later be used to cause, cure, or treat diseases in humans, plants, or animals. Clinical and medical microbiologists whose work is directly researching human health may be classified as medical scientists.

Environmental microbiologists study the ways in which microorganisms interact with the environment. They may study the use of microbes to clean up areas contaminated by heavy metals or study how microbes could aid crop growth.

Immunologists study how plant and animal immune systems react to and defend against pathogens or germs.

Industrial microbiologists work in industry and study and solve problems related to production. They may study microbial growth found in the pipes of a chemical factory, monitor the impact industrial waste has on the local ecosystem, or oversee the microbial activities used in cheese production.

Mycologists study the properties of fungi such as yeast and mold, as well as the ways fungi can be used (for example, in food or the environment) to benefit society.

Virologists study the structure, development, and other properties of viruses and any effects viruses have on infected organisms.

Many people with a microbiology background become high school teachers or professors. For more information, see the profiles on [high school](#) and [postsecondary teachers](#).